ACCIDENT REPORTING SYSTEM

INTRODUCTION :

Road accidents are a major cause of death and injury worldwide. Often, victims do not receive timely help due to delays in accident reporting. This project proposes an **IoT-based Accident Reporting System** that uses sensors and wireless communication to automatically detect and report accidents in real-time.

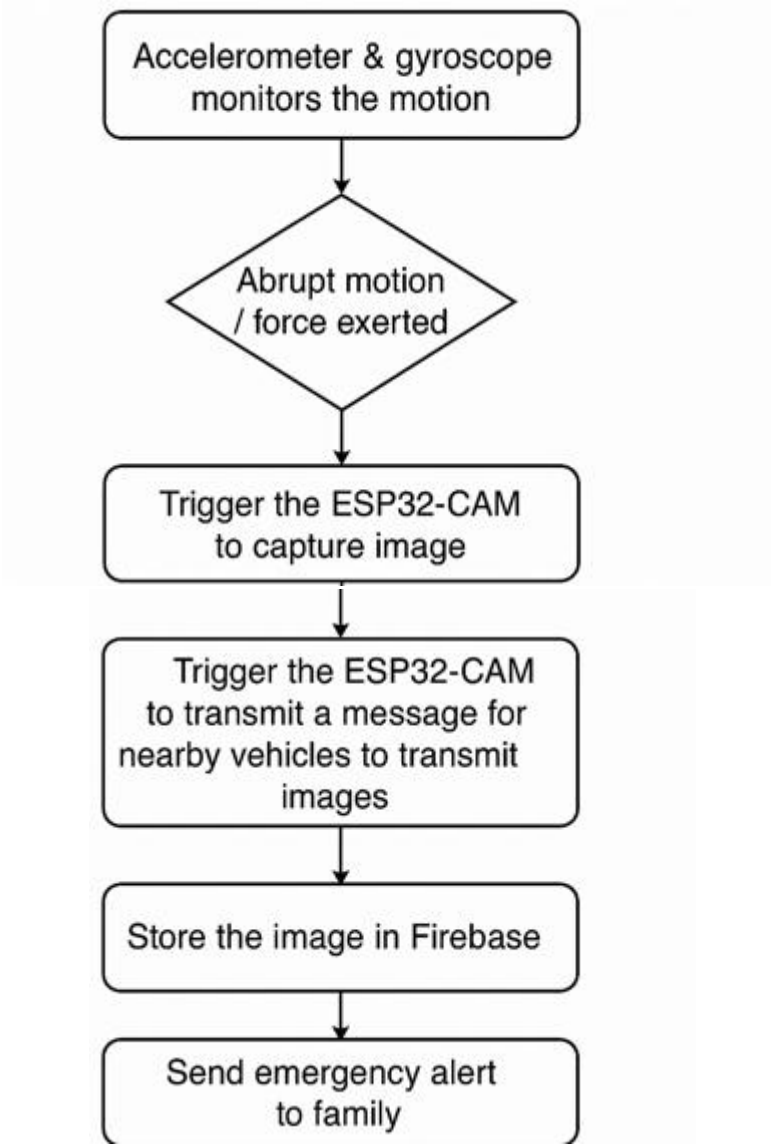
OBJECTIVES :

- Detect road accidents using built in accelerometer and gyroscope sensor available in phone.
- Capture the scene using a camera module.
- Automatically send an alert to emergency services and pre-defined contacts.
- Transmit data using RF transmitter-receiver modules or Wi-Fi.
- Store captured images and SMS alert logs in **Firebase** for remote monitoring.

COMPONENTS USED AND SOFTWARE REQUIRED :

- ESP32 CAM
- RF Transmitter and Receiver
- Android Studio
- Arduino IDE
- Bread board
- Firebase SDK
- Mobile Phone

WORK FLOW :

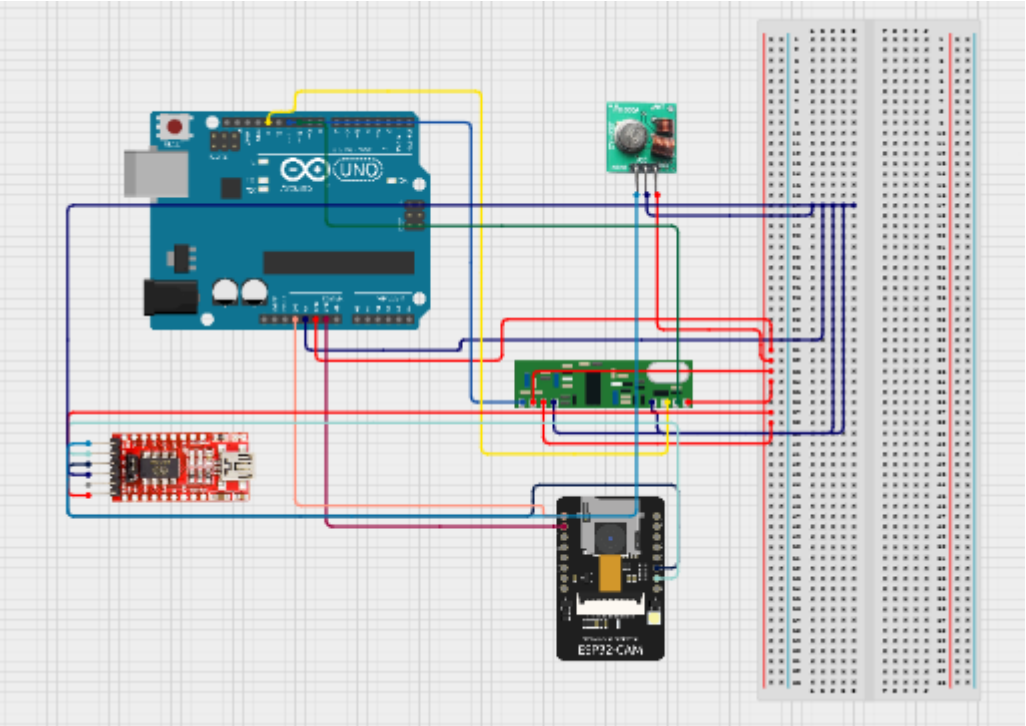


WORKING PRINCIPLE :

- The **accelerometer** and **gyroscope** continuously monitors the motion of the vehicle.
- On detecting abrupt motion or tilt beyond a set threshold, it is interpreted as a possible accident.
- The Android app triggers the **camera** to capture images.

- An **alert message** along with GPS location is sent to Emergency contacts via through Phone and near by vehicles via **RF transmitter and** image is stored in firebase.
- The receiver end logs or displays the data, alerting authorities.
- Store captured images and SMS alert logs in **Firebase** for remote monitoring.

CIRCUIT DIAGRAM :



FEATURES :

- Automatic accident detection
- Camera capture for evidence
- Real-time wireless alert transmission
- Low power consumption
- Expandable with GPS
- Images and alerts are stored in Firebase.

ADVANTAGES :

- Faster emergency response time
- Timely notification in emergency
- Can be integrated into smart vehicles
- No data loss because Images and alerts are stored in Firebase.